

Name: \_\_\_\_\_  
A2CC: Solving Rational Equations

Date: \_\_\_\_\_

Do Now:

1. Simplify:  $\frac{4}{x-2} + \frac{x}{x+2}$

**Examples: Solve for the variable**

1.  $\frac{1}{x^2} + \frac{1}{2} = \frac{11}{6x}$

2.  $\frac{y+9}{2y} + 3 = \frac{15}{y}$

3.  $\frac{b}{b+4} - \frac{1}{b} = \frac{2}{b+4}$

4.  $\frac{1}{h+1} + \frac{1}{h-1} = \frac{6}{h^2-1}$

5.  $\frac{y}{y+3} + \frac{y}{y-3} = \frac{18}{y^2-9}$

6.  $x+5 = \frac{6}{x}$

**Steps for solving rational equations:**

1.

2.

3.

**Exercises**

In 1-4, match the equation with the corresponding transformed equation, and state any necessary restrictions on the variable.

1.  $\frac{1}{z^2} - \frac{1}{3z} = \frac{1}{6}$

3.  $\frac{1}{z-2} + \frac{1}{z+3} = \frac{1}{z^2 + z - 6}$

2.  $\frac{4}{z-1} + \frac{4}{z} = \frac{3}{z-1}$

4.  $\frac{8}{z^2 - 4} + \frac{1}{z-2} = \frac{1}{z+2}$

a.  $2z+1=1$    b.  $6-2z=z^2$    c.  $8z-4=3z$    d.  $z+10=z-2$

In 5- 34, solve.

5.  $\frac{8}{14} = \frac{3}{m}$

6.  $\frac{10}{b} = 4\frac{1}{2}$

7.  $\frac{x-1}{4} = \frac{5}{6}$

8.  $\frac{x}{4} = \frac{16}{x}$

9.  $\frac{3}{p+2} = \frac{7}{8}$

10.  $\frac{2}{q} = \frac{q-1}{3}$

11.  $\frac{4}{m} - \frac{1}{m} = 3$

12.  $\frac{1}{b} - \frac{1}{2} = 1$

13.  $\frac{2}{p} + 1 = \frac{1}{4}$

14.  $\frac{2}{v} - \frac{2}{3} = \frac{1}{3v}$

15.  $\frac{1}{3} - \frac{2}{z} = \frac{1}{12}$

16.  $1\frac{1}{2} + \frac{1}{y} = \frac{1}{4}$

$$17. \frac{1}{x^2} + \frac{2}{x} = \frac{9}{16}$$

$$18. \frac{4}{u^2} - 10 = \frac{3}{u}$$

$$19. \frac{1}{t} - \frac{2}{t-1} = \frac{2}{t}$$

$$20. \frac{1}{w+2} + \frac{1}{w} = \frac{3}{w}$$

$$21. \frac{z}{z-2} + \frac{z}{z+1} = 2$$

$$22. \frac{2m}{m-2} - \frac{m}{m-1} = 1$$

$$23. \frac{x}{2} - \frac{5}{2} = 2 - \frac{4}{x}$$

$$24. \frac{r}{6} + \frac{1}{2} = \frac{1}{r} + \frac{1}{3}$$

$$25. \frac{a}{4} + \frac{5a-20}{4a} = \frac{1}{a}$$

$$26. \frac{3y^2}{y-1} + \frac{3}{2} = \frac{2y-1}{y-1}$$

$$27. \frac{3d^2}{2d-1} + \frac{3d-4}{2d-1} = -2$$

$$28. \frac{2n}{n+6} = \frac{3}{n-3}$$

$$29. \frac{3x}{x-2} - \frac{2x}{x-3} = \frac{x+27}{x^2-5x+6}$$

$$30. \frac{m-1}{2m+4} = \frac{m}{3m+15} - \frac{1}{m^2+7m+10}$$

$$31. \frac{y}{y-2} + \frac{y+1}{y+2} = \frac{2y-1}{y^2-4}$$

$$32. \frac{b+3}{3-b} + \frac{3b+1}{b^2-9} = \frac{1-5b}{b+3}$$

$$33. \frac{2z}{z+5} - \frac{1}{5-z} = \frac{10}{z^2-25}$$

$$34. \frac{x}{x-4} = \frac{16}{x^2-16} + \frac{2}{x+4}$$